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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,274	03/08/2005	Hisayoshi Fujimoto	10921.0289USWO	9570

23552 7590 09/12/2007

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EXAMINER	
HSU, AMY R	
ART UNIT	**PAPER NUMBER**
2622	

MAIL DATE	DELIVERY MODE
09/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/527,274	FUJIMOTO ET AL.	
	Examiner	Art Unit	
	Amy Hsu	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12, 14-24* is/are rejected.

7)☒ Claim(s) *13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 March 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/8/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-5, 7, 10-12, 14-22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Korein et al. (US 6226035).

Regarding Claim 1, Korein teaches an image sensor module (*Fig.* 1) comprising: a photoelectric converter having a light receiving surface (*Fig. 1 reference number 20 and Col 7 Lines 5-6)*; and a first optical unit forming an image of a subject on the light receiving surface (*Fig. 1, reference number 20 and 26 comprise an optical unit with a different path since it does not pass through reference number 10)*; wherein the image sensor module further comprises a second optical unit having a different light path to the first optical unit for forming an image of the subject on the light receiving surface of the photoelectric converter (Col 7 Lines 14-17, *Fig. 1 reference number 10 is a wide angle optical system)*; and switching is possible between imaging of the subject using the first optical unit and imaging of the subject using the second optical unit (*Col 2 Lines 45-54)*. However, Korein teaches the image sensor module including two optical systems with different light paths in the form of a surveillance camera system, and therefore the different parts of the system are not within a case, and are large enough

to be seen, both to fulfill the purpose of a surveillance camera and allow users to be aware of its presence. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to consider the teaching of Korein to move the image sensor to different optical units to achieve different angles of view, and apply this teaching to a handheld apparatus within a case. Miniaturizing the system taught by Korein and enclosing it in a case so as to be durably portable would produce predictable results because it would not modify what is taught by Korein, but would expand the teaching by applying it to a portable enclosed device.

Regarding Claim 2, Korein teaches an image sensor module according to claim 1, wherein the first and second optical units each have an image-forming lens (*In Fig. 1, the second optical unit has a lens, 16, and the first optical unit has a lens, 26)*, and a light path from the image-forming lens of the second optical unit to a first position where the image of the subject is formed is longer than a light path from the image-forming lens of the first optical unit to a second position where the image of the subject is formed (*Fig. 1 shows the path from the image sensor, 20, to the second optical unit as indicated by reference number 32, which is longer than the path from 20 to 26, the first optical unit).*

Regarding Claim 3, Korein teaches an image sensor module according to claim 1, wherein the first optical unit is employed for standard imaging, and the second optical unit is employed for standard imaging with a narrower view angle during

imaging than the first optical unit, or for telescopic imaging. Col 2 Lines 45-54 teach that the first optical unit is for a direct field of view, or standard view, and the second optical unit is for wide-angle view. It would have been obvious to one of ordinary skill in the art to modify the teaching of Korein to replay wide angle with telescopic field of view. This modification would have yielded predictable results since changing the type of lens in the optical system will modify the field of view.

Regarding Claim 4, Korein teaches an image sensor module according to claim 2, wherein the photoelectric converter comprises an image sensor chip, and the image sensor chip is movable to the first and second positions (*Col 7 Lines 5-7 and Col 2 Lines 45-54).*

Regarding Claim 5, Korein teaches an image sensor module (*Col 7 Lines 5) and* an operating mechanism (*Fig. 1 reference number 24)* for moving the substrate relative to the case to bring the image sensor chip to the first and second positions (*as described in Col 2 Lines 47-52).* One skilled in the art realizes an image sensor is mounted on a substrate within a circuit. In would have been obvious to one of ordinary skill in the art at the time of the invention to apply the teaching of Korein to move the photosensitive area between two optical systems to a handheld object where the image sensor moves within an enclosed body rather than within an enclosed room as is applied to the surveillance system of Korein. Miniaturizing the system taught by

Korein and enclosing the miniaturized system would yield predictable results, which would not deviate from the novelty of Korein.

Regarding Claim 7, Korein teaches an image sensor module according to claim 4, further comprising an optical filter passing only light of specific wavelengths proceeding to the image sensor chip, wherein the optical filter is movable together with the image sensor chip. One of ordinary skill in the art will recognize that an optical filter is standard and well known to collaborate in a system together with an image sensor chip to filter specific wavelengths passing through to the image sensor chip. A filter is standard in such a camera as taught in Fig. 1 reference number 20 and therefore would move together with the image sensor between the two optical systems.

Regarding Claim 10, Korein teaches an image sensor module according to claim 2, wherein the first optical unit has an optical axis extending linearly from the image-forming lens to the first position, and the second optical unit has a bent optical axis extending from the image-forming lens to the second position (*Fig. 3A shows the second optical unit in a position where there is a bent optical axis from the lens, whereas the optical axis is linear in the first position because 20 to 26 is linear).*

Regarding Claim 11, Korein teaches an image sensor module according to claim 10, wherein the second optical unit includes light-reflecting means for reflecting light an even number of times. The second optical system, Fig. 1 reference number 10

includes mirrors, 14 and 12 that reflect light an even number of times once between the optical system and the image sensor and another time between the two mirrors.

Regarding Claim 12, Korein teaches an image sensor module according to claim 11, wherein the light reflecting means has a first light reflecting surface (*Fig. 1 reference number 12)* for causing light proceeding in a first direction from a front side of the subject towards the system (*the image of the subject on the ground, bottom of reference number 4, is reflected to the first mirror,12 vertically in a first direction)* to be reflected in a second direction intersecting the first direction (*in a horizontal direction, which intersects the vertical first direction)*, and a second light reflecting surface (*Fig. 1 reference number 14)* for causing light from the first light receiving surface to be reflected in the first direction towards the second position (*reflects light from 12 horizontally to the image sensor, 20)*. Korein applies this to a large system, but it would have been obvious to miniaturize and enclose the system in a case as stated in the paragraph regarding Claim 1.

Regarding Claim 14, Korein teaches an image sensor module according to claim 11, wherein the light-reflecting means includes a plurality or mirrors (*Fig. 1 reference number 12 and 14 are mirrors included in the second optical system, reference number 10, to comprise the light reflecting means)*.

Regarding Claim15, Korein teaches an image sensor module according to claim 12, wherein the first and second optical units mutually overlap in the second direction. In Fig. 1, the second direction horizontally extends from reference number 14 to 20, therefore the first optical unit, 20 with 26, overlaps with the second optical unit, 10, in the second direction.

Regarding Claims 16 and 17, Korein teaches an image sensor module according to claim 2, but fails to teach the second optical unit has fewer lenses than the first optical unit, or details of aperture size. However, it would have been obvious to one of ordinary skill in the art to choose any combination of lenses including type of lens, concavity, or number of lenses to modify each of the optical units and still yield the same predictable results as that disclosed by Korein since the details of the lenses of the optical systems does not affect the inventive concept. Also, changing other details of the optical systems such as aperture size is regarded in the same way as the details of the lenses.

Regarding Claim 18, Korein teaches an image sensor module according to claim 2, wherein the image-forming lens of at least one of the first and second optical units is positionally adjustable in the optical axis direction. Since Korein teaches that Fig. 1 reference number 26 is a zoom lens, then it is adjustable in the optical axis direction.

Regarding Claim 19, Korein teaches an image sensor module according to claim 2, wherein the second position is closer to the first position than it is to an incident optical axis of the second optical unit. The second position is obtained when the image sensor is aligned with the optical system 10, and the first position is obtained just outside of being aligned with the second position. Therefore the second position is closer to the first position than anything else.

Regarding Claim 20, Korein teaches an image sensor module according to claim 2, wherein an incident optical axis of the second optical unit is closer to the first position than it is to the second position. The optical axis of the second unit extends into the first position as seen in Fig. 1 and is closer than it is to the second position.

Regarding Claim 21, Korein teaches an image sensor module according to claim 1, comprising two separate optical system where imaging using either optical system can be chosen by movement of the image sensor. Korein does not teach a third optical unit having an optical path different from the optical paths of the first and second optical units for forming an image of the subject on the light receiving surface of the photoelectric converter. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Korein to add an additional optical unit which can be switched to for imaging besides the first and second optical units. Since Korein teaches the concept of different optical systems with different optical paths from one another and switching between the different optical

systems, it would not change the concept of that taught by Korein to add another optical system. Adding another optical system in modification to Korein would yield predictable results, given the teaching of Korein.

Regarding Claim 22, Korein teaches an image sensor module according to claim 21, wherein the photoelectric converter comprises an image sensor chip, and the image sensor chip is movable to positions where images of the subject are formed in the first through third optical units. This would be obvious for the same reason stated in the paragraph regarding Claim 21.

Regarding Claim 24, Korein teaches an image sensor module, comprising an image sensor (*Fig. 1 reference number 20)* with a light receiving surface toward the optical systems, which form an image on the light receiving surface. Korein teaches the optical unit (*Fig. 1 reference number 10)* with a first light reflecting surface (*reference number 12)* for causing light in a first direction towards the system and is reflected in a second direction off of reference number 14, the second light reflecting surface, which intersects the first direction (*vertical),* and causes light reflected by 12 to be reflected towards the light receiving surface, 20.

Since the system taught by Korein is a surveillance system, it is contained in separate pieces and is out in the open to be in plain view, and Korein fails to teach a case enclosing the system. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to miniaturize the system taught by Korein

and contain it in an enclosed case without departing from the inventive concept taught by Korein. Such modifications would yield predictable results consistent with that of Korein.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Korein et al. (US 6226035) in view of Sheng (US 6801343).

Regarding Claim 6, Korein teaches an image sensor module according to claim 5, but since Korein teaches the image sensor movement as the movement of an entire camera, Korein fails to teach the image sensor sliding within a cover. As stated in Claim 1, the concept of Korein can be miniaturized and enclosed in a case without departing from the concept of an image sensor moving between two positions defined by two optical units with different optical paths. In order to realize the miniaturization of this concept, Sheng teaches the concept of an image sensor which is enclosed and can slide within the enclosure (*Col 2 Lines 39-50).* It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of Korein with that of Sheng in order to realize the miniaturization of the concept taught by Korein, which would allow one image sensor to be used to capture images from two different optical systems and apply this concept to a handheld device.

4. Claims 8-9, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Korein et al. (US 6226035) in view of Yamamoto (US 6907139).

Regarding Claim 8, Korein teaches an image sensor module according to claim 2, and teaches one image sensor that moves between a first and second position, and therefore fails to teach two separate image sensors including one for each of the two positions. Yamamoto teaches a system with two optical systems (*Col 2 Lines 38-43)* each with an image sensor positioned in front of each optical system (*Fig. 2 shows two optical systems each with its own image sensor).*

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Korein, which uses one image sensor moved between two optical systems by adding one image sensor for each optical system because this would eliminate the need for moving the one image sensor.

Regarding Claim 9, Korein in view of Yamamoto teach an image sensor module according to claim 8, and Yamamoto further teaches that in the system with two image sensors, each has its on drive circuit (*Fig. 2 reference number 30A and 30B, both connected to a system control).* One of ordinary skill in the art would recognize that given the setup described, it would be a basic function of the system control circuit to perform on-off drive of the first and second image sensor chips in a switchable manner.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Korein with that of Yamamoto because adding a separate image sensor for each optical system would involve control of each sensor in the way taught by Yamamoto.

Regarding Claim 23, Korein in view of Yamamoto teach an image sensor module wherein the photoelectric converter comprises first and second sensor chips provided in corresponding relationship to the first and second optical units. It would have been obvious to one of ordinary skill in the art to modify this teaching by adding another optical unit with a corresponding additional sensor chip because adding another pairing would not modify the concept taught by Korein in view of Yamamoto and would yield predictable results.

Allowable Subject Matter

Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure including Schaack (US 6806899), Kuwata et al. (US 6766112), Takakura et al. (US 6339214), Nishi (US 6654097), and Yoshioka et al. (US 7071973).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy Hsu whose telephone number is 571-270-3012. The examiner can normally be reached on M-F 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lin Ye can be reached on 571-272-7372. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Amy Hsu
Examiner
Art Unit 2622

ARH 9/3/07

LIN YE
SUPERVISORY PATENT EXAMINER